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IS 14837 (2000): Laboratoryware - Silica Crucibles [CHD 10: Glassware]



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भारतीय मानक

प्रयोगशाला सामान — सिलिका क्रूसीबल — विशिष्टि

Indian Standard

**LABORATORYWARE — SILICA CRUCIBLES —
SPECIFICATION**

ICS 71.040.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Laboratoryware and Related Apparatus Sectional Committee had been approved by the Chemical Division Council.

Silica crucibles are extensively used for laboratory purposes. In order to ensure harmonization with the International Standards, the Committee decided to formulate a standard on the subject based on the corresponding ISO 1772 : 1975 'Laboratory crucibles in porcelain and silica' formulated by the International Organization for Standardization. However, there are deviations between this standard and the corresponding ISO standard to the extent that this standard does not include the crucibles made of porcelain which are covered separately by IS 2837 (Part 1) : 1975 'Porcelain crucibles and basins: Part 1 Crucibles (*first revision*)'.

For crucibles of sizes larger than those specified in this standard, it is recommended that a suitable multiple of 10 mm as the nominal top diameter may be selected and one of the three standard ratios mentioned in this standard may be applied to obtain the nominal height.

The composition of the technical committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

LABORATORYWARE — SILICA CRUCIBLES — SPECIFICATION

1 SCOPE

This standard prescribes requirements for silica crucibles and crucible lids for general laboratory purpose.

2 REFERENCE

IS 4426 : 1992 'Method for sampling laboratory glassware (*first revision*)' contains provisions, which through reference in this text, constitutes provision of this standard. At the time of publication, the edition indicated was valid. The standard is subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent edition of this standard.

3 TYPES

3.1 Crucibles

Three types of crucibles are specified as follows:

- a) *Type 1* — Low form, based on a height/diameter ratio of 0.63 [see Fig. 1 (a)].
- b) *Type 2* — Medium form, based on a height/diameter ratio of 0.8 [see Fig. 1 (b)].
- c) *Type 3* — Tall form, based on a height/diameter ratio of 1.25 [see Fig. 1 (c)].

3.2 Lids

Lids of two types are specified as follows:

- a) *Type D* — A lid of slightly domed shape [see Fig. 1 (d)].
- b) *Type R* — A recessed lid [see Fig. 1 (e)].

4 SIZES

The various sizes for all the 3 types of crucibles shall be as given in Table 1.

NOTE — No values of nominal capacity are specified, but it is recommended that manufacturers should state these for the information of users, on the following basis:

Nominal capacity = approximately 75 percent of overflow capacity

5 MATERIAL

5.1 Silica crucibles and lids shall be made from vitreous silica, either translucent or transparent.

6 DETAILS OF CONSTRUCTION

6.1 General Design

The general design of the crucibles and lids should be as shown in Fig. 1.

6.2 Stability

The crucibles shall stand upright without rocking or spinning when placed on a level surface.

6.3 Provision for Lifting Lids

There shall be a ring or a protuberance, with a hole in it, at the centre of the upper surface of the domed lid so that the lid may be conveniently lifted with crucible tongs or supported by a piece of wire.

The recessed lid shall be extended at one side into a flattened lip suitable for lifting with crucibles tongs.

NOTE — The designs shown in Fig. 1 are suitable but alternative designs serving the same purpose may also be used.

7 DIMENSIONS

7.1 Crucibles

The dimensions and dimensional tolerances for external diameter and external height of crucibles shall be as given in Table 1 for different size designations.

NOTE — No wall thicknesses are specified, because the appropriate thicknesses will vary with the material of construction.

7.2 Lids

7.2.1 Domed Type

The internal rim diameter, d_1 , shall be at least 1 mm greater than the maximum external diameter of the crucibles with which the lids are intended to be used.

The internal depth, a_1 , of the rim shall be at least 2 mm.

7.2.2 Recessed Type

The external diameter of the recessed portion, d_2 , shall be at least 1 mm greater than the maximum external diameter of the crucibles with which the lids are intended to be used.

The diameter of the recessed portion, d_3 , shall be at least 1 mm less than the minimum internal diameter of the crucibles with which it is intended to be used.

The depth, a_2 , of the recessed portion shall be at least 2 mm.

8 DESIGNATION

8.1 Crucibles

Each crucible shall be designated by the type number

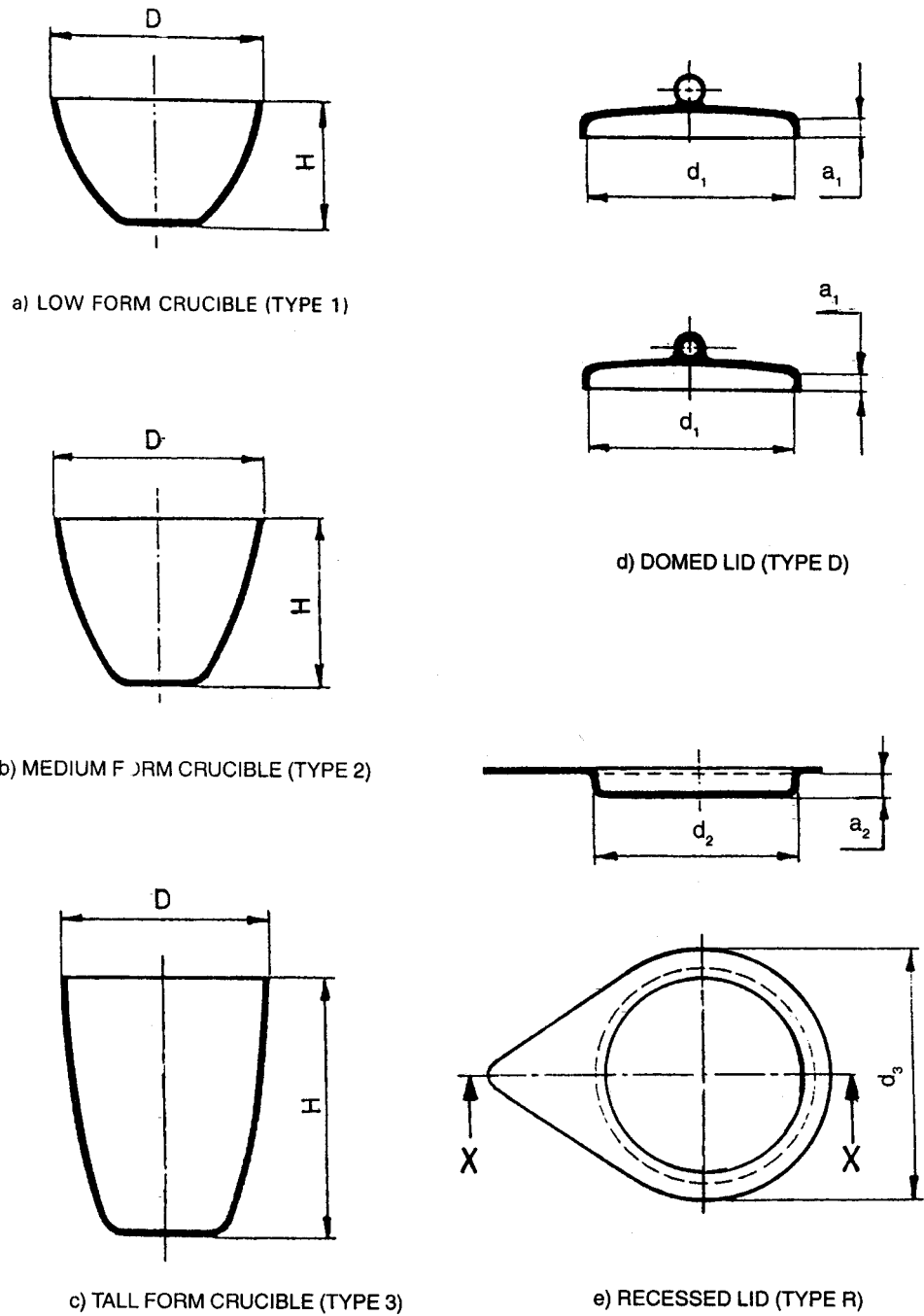


FIG. 1 SILICA CRUCIBLES AND LIDS

Table 1 Dimensions for Silica Crucibles
(Clauses 4 and 7.1)

All dimensions in millimetres.

Shape	Size Designation	External Diameter <i>D</i>		External Height <i>H</i>	
		Nominal	Tolerance	Nominal	Tolerance
Type 1 Low form ($H/D = 0.63$)	1/30	30	± 1.5	19	± 1.0
	1/35	35	± 1.5	22	± 1.0
	1/40	40	± 1.5	25	± 1.0
	1/45	45	± 2.0	28	± 1.0
	1/50	50	± 2.0	32	± 1.5
	1/60	60	± 2.5	38	± 1.5
	1/70	70	± 2.5	44	± 2.0
Type 2 Medium form ($H/D = 0.8$)	2/35	35	± 1.5	28	± 1.0
	2/40	40	± 1.5	32	± 1.5
	2/45	45	± 2.0	36	± 1.5
	2/50	50	± 2.0	40	± 1.5
	2/60	60	± 2.5	48	± 2.0
	2/70	70	± 2.5	56	± 2.0
Type 3 Tall form ($H/D = 1.25$)	3/30	30	± 1.5	38	± 1.5
	3/35	35	± 1.5	44	± 2.0
	3/40	40	± 1.5	50	± 2.0
	3/45	45	± 2.0	56	± 2.5
	3/50	50	± 2.0	62	± 2.5
	3/60	60	± 2.5	75	± 3.0

NOTE — The nominal height has been obtained by applying the appropriate ratio H/D to the nominal diameter and then rounding to whole millimetres.

The tolerances have been obtained by calculating ± 3.5 percent of the nominal dimensions and rounding outwards to half millimetre.

(1, 2 or 3) followed by a number representing the external top diameter in millimetres (for example, 1/35, 2/60 etc).

8.2 Lids

Each lid shall be designated by the type letter (D or R) followed by a number representing the nominal external top diameter in millimetres of the crucibles with which it is intended to be used (for example, D 40, R 50).

9 MARKING

Each crucible and lid shall be marked with the following information:

- Designation;
- The manufacturer's name or trade-mark, if any; and
- The month and year of manufacture in code or otherwise.

9.1 BIS Certification Marking

The crucible and lid may also be marked with the Standard Mark.

9.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10 SAMPLING AND CRITERIA FOR CONFORMITY

10.1 Representative samples of crucible and lids shall be drawn and adjudged for conformity to this standard as prescribed in IS 4426.

10.1.1 Three samples from the lot shall be tested and all the three samples shall satisfy all the specified requirements.

ANNEX A
(Foreword)
COMMITTEE COMPOSITION

Laboratoryware and Related Apparatus Sectional Committee, CHD 11

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National Council of Educational Research and Training, New Delhi

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Borosil Glass Works Ltd, Mumbai

Modern Instruments, Bangalore

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Development Commissioner, Small Scale Industries, New Delhi

Indian Institute of Technology (Chemistry Department), New Delhi

National Chemical Laboratory, Pune

National Test House, Calcutta

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DR DEVENDRA MOHAN

Additional Director (Chem), BIS

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Amendments Issued Since Publication

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